25. *TOR PUTITORA* (HAMILTON, 1822) AS AN ADDITION TO THE FISH FAUNA OF PENINSULAR INDIA

Genus *Tor* (Gray 1834) shows wide distribution in the freshwaters of Asia, Africa and Indo-Australian Archipelago (Tilak and Sharma 1982). The six species of *Tor* described so far show a distinct pattern of distribution from great Himalayas to Peninsular region in the Indian subcontinent. Among the species in the genus *Tor*, *T. putitora* attains the largest size up to 274 cm (Misra 1962) and is characterised by an uninterrupted posterior fold in the lower lip and with a median fleshy lobe (mentum) (Tilak and Sharma 1982; Talwar and Jhingran 1991). Nautiyal and Lal (1982) reported a female specimen of *Tor putitora* having 137.7 cm length and a weight of 23 kg from river Nayar. *Tor khudree*, *T. mussullah* and *T. tor* are the three species hitherto known from South India (Kulkarni 1980; Kulkarni and Ogale 1979; Sen and Jayaram 1982; Menon 1999; Ajithkumar *et al.* 2000; Kurup *et al.* 2001; Shaji and Easa 2001). During the survey of NAT-ICAR project on Germplasm Inventory Evaluation and Genebanking of Freshwater Fishes of Kerala, the authors came across two specimens of *Tor putitora* having lengths of 260.07 and 162.02 (170.04 gm and 36.18 gm weight) respectively from two tributaries of Kabini river system, namely, Kalindi and Noolpuzha, thus increasing the number of mahseer species of Peninsular India to four.

Description: (Based on two specimens having 219.8 and 130.58 mm SL)

D III 9; P I 15; V I 8; A II 5

Head length 3.03 and 3.52, body depth 3.7 and 4.3 in standard length. Eyes lie on posterior half of the head and their length is contained from 5.59 and 6.6 times in head length and from 1.2 and 1.3 times in interorbital width. Dorsal and ventral profiles are equally convex. Two pairs of barbels are present, maxillary longer than rostral barbels. Predorsal scales 9. Origin of dorsal lies opposite to that of pelvics and midway between tip of snout and base of caudal fin. Dorsal spine bony, strong and smooth, equal to depth of body. Caudal fin is sharply forked. The least height of caudal peduncle is contained 1.6 times in its standard length. There are 26-27 large scales along the lateral line, 2½ rows between the lateral line and the pelvic fin and 3½ rows between the base of dorsal fin and the lateral line. Pelvic fin bears a well developed scaly appendage. Head is broadly pointed and the lips are fleshy and continuous at the corners of the mouth. Both the lips are hypertrophied in the smaller specimen.

Colouration: Dorsal side of the body is greenish black, while the ventral profile is silvery in appearance. The head is slightly yellowish white while the eyes are dark bluish. Fins are golden yellowish and paired fins are characterised by fringed red colouration. Caudal fin mottled black.

Habitat and ecology: *Tor putitora* was collected from the rapid and riffle habitat of Begur and Noolpuzha respectively. The smaller one was collected from the rapid habitat of Begur with bedrock as the dominant substratum while the larger specimen was collected from the riffle habitat of Noolpuzha with boulders as the dominant substratum. Flow velocity is comparatively high in both the habitats and the canopy cover is very good.

Distribution: It is found all along the Himalaya including Kashmir, Uttar Pradesh, Punjab, Haryana, Darjeeling District of West Bengal, Assam, Western Himalaya, Nepal, Eastern Himalaya, Afghanistan, Pakistan, Bangladesh and China (Tilak and Sharma 1982; Talwar and Jhingran 1991; Sen and Jayaram 1982). The present collection from the Kabini river system of Kerala extends the range of distribution of this species down to Peninsular India.

Remarks: Since there is no authentic report on the introduction of *Tor putitora* in peninsular India either accidentally or purposefully, the present report of *Tor putitora* from Kabini river is highly intriguing and gives rise to the question of the extension of its natural distributional range to peninsular India. It is interesting to note that more than half a dozen fish species show discontinuous distribution only in the Himalaya in the north and Peninsular mountains in the south. This peculiar pattern, which is also seen in the distribution of animals, is well explained by Dr. S.L. Hora in his Satpura Hypothesis (Hora 1953). The present record of *Tor putitora* from Kabini river is another valid evidence for strengthening the Satpura Hypothesis.

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REFERENCES

AJITHKUMAR. C.R., C.R. BIJU & K. RAJU THOMAS (2000): Ecology of hill streams of Western Ghats with special reference to fish community. BNHS research report. Bombay Natural History Society. 203 pp.

GRAY, J.E. (1834): Illustrations of Indian zoology, chiefly selected from the collection of General Hardwicke, 2. Pp. 96.

HAMILTON, B. (1822): An account of the fishes found in the river Ganges and its branches. Archibald Constable and Company, Edinburgh and Hurst Robinson and Co. 90, Cheapside, London. 405 pp.

HORA, S.L. (1953): The Satpura Hypothesis. *Sc. Progress 41(162)*: 245-255

KULKARNI, C.V. (1980): Eggs and early development of *Tor mahseer* Fish. *J. Bombay Nat. Hist. Soc. 77(1)*: 70-75

KULKARNI, C.V. & S.N. OGALE (1979): The present status of mahseer (Fish) and artificial propagation of *Tor khudree* (Sykes). *J. Bombay Nat. Hist. Soc. 75(3)*: 651-660.

KURUP, B.M., T.G. MANOJKUMAR & K.V. RADHAKRISHNAN (2001): Germplasm Inventory Evaluation and Genebanking of Freshwater fishes. NAT-ICAR Research report. Cochin University of Science and Technology, Cochin, Kerala.

MENON, A.G.K. (1999): Checklist of freshwater fishes of India. *Rec. zool. Surv. India, Occ. paper no. 175*: 366 pp.

MISRA, K.S. (1962): An aid of the identification of the common commercial fishes of India and Pakistan *Rec. Indian Mus. 57 (1-4)*: 149-156

NAUTIYAL, P. & M.S. LAL (1982): Recent record of Garhwal mahseer (*Tor putitora*) with a note on its present status. *J. Bombay Nat. Hist. Soc. 79*: 693-695.

SEN, T.K. & K.C. JAYARAM (1982): The mahseer fishes of India – A Review. *Rec. zool. Surv. India. Occ. Paper no. 39*: 38 pp.

SHAJI, C.P. & P.S. EASA (2001): Freshwater fishes of the Western Ghats. KFRI-NBFGR publication. 108 pp.

TALWAR, P.K. & A.G. JHINGRAN (1991): Inland fishes of India and adjacent countries. Oxford & IBH Publishing Co. Ltd., New Delhi. Vols. I & II. 1158 pp.

TILAK, R. & UMA SHARMA (1982): Game fishes of India and angling. International Book Distributors, Dehra Dun. 304 pp.

26. FISHES OF THE GENUS *COLISA* CUVIER FROM MANIPUR AND FIRST RECORD OF *COLISA LABIOSUS* (DAY) FROM INDIA

The genus *Colisa* Cuvier belongs to the Family Belontidae and is distinguished from other genera in having the pelvic fins each reduced to a single ray and dorsal fin having 15-18 spines. Menon (1952) recorded *Colisa fasciatus* (Schneider) for the first time from Manipur and listed it in his list of species from the State. Menon (1954) recorded a female form of *C. chuna* (Hamilton-Buchanan) [now *C. sota* (Ham.-Buch.)] for the first time from Manipur. It is found abundantly in Loktak lake of the State. He also listed *C. fasciatus* in his list of species from Manipur. Day (1878) described *C. labiosus*, which was collected from Rangoon, Myanmar. Chaudhuri (1912), Hora (1921, 1936), Hora and Mukerji (1935), Menon (1952) and Menon (1954) reported the fishes of Manipur, but did not include *C. labiosus*. This paper gives diagnostic characters of the fishes of the genus *Colisa* from Manipur including that of the newly recorded *C. labiosus* (Day) from India.

Measurements and counts follow Jayaram (1999). The body proportions are expressed in percentages of standard length (SL) and head length (HL). The specimens of the three species, *C. fasciatus*, *C. sota* and *C. labiosus* are deposited in the Manipur University Museum of Fishes (MUMF).

***Colisa labiosus* (Day)**

Trichogaster labiosus Day, 1878. Fishes of India. 374, pl. 79, fig. 4 (type-locality: Rangoon, Myanmar); Day, 1889. *Fauna Br. India, Fishes 2*: 372.

Material examined: MUMF L0019/18, 47.0-64.5 mm SL, 5.vi.2001-15.viii.2001, Mayang Imphal ponds and Iril river. I. Linthoingambi (IL)

Local name: Pheteen (Manipuri).

Diagnosis: Size small. The species can be distinguished from other species of *Colisa* in having very thick and papillated lips (Fig. 1b), and soft dorsal and anal fins produced. D. xv-xviii, 9-11; A. xv-xviii 15-18, C 15; P. iv 7-9; V. 1. Predorsal scales 8-9. Morphometric data of the specimens (Table 1) with comparison to that given by Day (1878) are given in Table 2.

Table 1: Morphometric data of *Colisa labiosus* (% of standard length except SL in mm)

Characters	Range	Mean	S.D.
Standard length	47.0-73.4	-	-
Depth of body	34.9-44.3	40.1	2.5
Head length	12.1-35.3	31.2	6.5
Maximum head width	17.4-20.5	20.1	0.9
Head width (nares)	11.3-15.0	13.0	1.1
Head depth (occiput)	25.0-30.1	27.7	2.0
Head depth (eye)	17.0-20.4	18.3	1.5
Snout length	7.4-11.2	8.8	1.1
Eye diameter	8.2-10.2	9.2	0.7
Inter-orbital space	14.2-16.7	15.4	0.8
Gape width	8.0-12.1	10.2	0.9
Inter-narial space	9.0-13.5	10.2	1.0
Pre-dorsal length	34.1-43.3	37.5	2.5
Pre-pelvic length	27.2-35.0	30.3	2.0
Pre-anal length	37.0-43.1	41.0	2.0
Dorsal fin base length	49.0-62.5	59.3	4.0
Pectoral fin length	29.3-34.4	32.0	1.3
Ventral fin length	81.5-97.4	91.0	6.2
Anal fin length	55.3-67.3	62.0	3.5
Caudal fin length	32.2-39.1	35.9	2.5
Body width (dorsal origin)	16.4-20.0	18.1	1.1
Body width (anal origin)	15.5-19.5	18.0	1.1